

INITIAL

Weather & Den. Alt.
Weight & Balance
Performance Req.
Flight Plan - File
Papers - A.R.O.W.
Mags - Off
Mixtures - Full Lean
Gear Lever - Down
Master - On
Gear Lights - **Green**
Flaps - Extend
Pitot Heat - Test
Stall Vanes - Test
Lights - Int. / Ext.
Fuel Gauges - True
Master - Off

EXTERIOR SUMMARY
After Thorough Geographical Check

Fuel Quantity
Fuel Quality
Caps / Drains / Vents
Engines / Oil / Belt
Props / Air Intakes
Exhaust Systems
Cowl Flaps
Surfaces & Controls
Pitot & Static Ports
Gear / Tires / Brakes
Antennas
Baggage Doors
Ties/Chocks/Towbar
Final Walk Around

INTERIOR

Flaps - Up
Passenger Load/Brief
Hobbs / Tach Time
Circuit Breakers
Oxygen
ELT - Armed

START

Seat Track/Back- Lock
Avionics - Off
Autopilot - Off
Prop Sync - Off
Cowl Flaps - Open
Brakes

#1 Engine Start

Fuel - Mains
Mixture - Rich
Prop - High RPM
Throttle - Slight
Prop - Clear
Master - On
Beacon - On
Fuel Pump
Off After Fuel Indication
Mixture - Lean
Mags - On
Starter - Engage
Mixture - Rich
Oil / Fuel Pressure
Generator - On

#2 Repeat Engine Start

Lights - As Req.
Mixture - As Req.

PRE-TAXI / TAXI

Seat Belts / Harness
Heat / Vent / Defrost
Avionics - On
ATIS / AWOS
Altimeter
XPDR - Alt + Sqwk
ADS-B - On
Radio - Test
Taxi Light - As Req
Brakes - Test
Fuel Crossfeed - Test
Attitude Indic. - Test
Turn Coord. - Test
HSI To Compass - Test

RUN-UP

Brakes
Elec. Trim/Autopilot
Trim-Takeoff
Flight Controls
Instruments
Mixture - Best Power
1500 RPM
Feather - Test
2200 RPM
Props - Cycle
Mags (L&R) - Test
Vacuum
Amps / Volts
Generators
Oil Pressure
Oil Temperature
Idle - Check Closed
Friction Lock

PRE-TAKEOFF

Flaps - 0° - 15°
Props - High RPM
Mixture - Best Power
Fuel Pumps - On
Heading Bug
XPDR - Alt + Sqwk
Doors / Windows
Pitot Heat - As Req.
Landing Light - On
Strobes - On
Time - Note
Brakes - Release

Abort Plan - Ready!

TAKEOFF

Full Throttle
2700 RPM (Max)
Manifold Pressure
Oil Pressure
Rotate * 78 (90)
Vy - 97 (112)
Gear - Up
Flaps - Up

CLIMB

113 (130)
Throttles - 24" MP
Props - 2400 RPM
Mixture - As Req.
Fuel Pumps - As Req.
Cowl Flaps - Open
Instruments
Taxi/Land Light - Off
Flight Plan - Open

CRUISE

Throttles
Props
Mixture
Fuel Pumps - As Req.
Cowl Flaps - Close
Instruments
Oxygen
Fuel - Proper Tanks

DESCENT

Power - As Req.
Mixture - Richen
Fuel - Mains
Cowl Flaps - Close
Defroster
ATIS / AWOS
Altimeter
Instruments

PRE-LANDING

Brakes - Pedal Test
Landing Light - On
Autopilot - Off
Seat Belts / Harness
Mixture - Best Power
Fuel Pumps - On
Fuel - Mains
Gear - Down **Green**
Flaps - As Req.

LANDING

Gear - Down **Green**
Flaps - 27° Or As Req.
Prop - > 2400 RPM
Speed * 83 (95)

G. U. M. P. F. S.

GO-AROUND

Power - Full
Positive Rate Climb
Flaps - UP
Gear - Up
Cowl Flaps - Open

AFTER LANDING

Flaps - Up
Fuel Pumps - Off
Cowl Flaps - Open
Strobes - Off
Landing Light - Off
Taxi Light - As Req.
Props - High RPM
Pitot Heat - Off
Heater - Fan
Mixture - As Req.
Trim - Takeoff
XPDR - Alt + Sqwk

SECURING

ELT - Verify Silent
Avionics - Off
Mixture - Full Lean
Mags - Off
Master - Off
Lights - Off
Cowl Flaps - Close
Hobbs / Tach Time
Secure Yoke
Chocks
Tie Downs
Pitot Cover
Baggage Doors
Cabin Doors

Close Flight Plan

* Adjust Speed
As Needed For
Conditions.

Check Your POH
For Notes / Cautions
Plus Manufacturer
For Revisions.

Vr • Rotation Speed - 78 (90)	Vsq • Stall W/with Flaps - 60 (69)	Va • Max Abrupt (3000 lbs) - 129 (148)	X Wind • Max Demo'd - 17 (20)
Vx • Best Angle Climb - 78 (90)	Vs • Stall w/o Flaps - 66 (76)	Va • Max Abrupt (Full Gross) - 141 (162)	Vfe • Full Flaps - 109 (125)
Vxse • Best Angle 1 Eng. - 82 (94)	Vsse • 1 Eng. Intentional - 84 (97)	Vmca • Min. Ctrl. 1 Eng. - (1) 78 (90)	Vlo • Max Gear Operate - 130 (150)
Vy • Best Rate Climb - 97 (112)	Vyse • Best Rate 1 Eng. - 91 (105)	Vno • Max Structural Cruise - 169 (194)	Vne • Never Exceed - 200 (230)

	KNOTS (MPH)	FLAPS °	- NOTES -
DEPARTURE			
Rotation *	78 (90)	0	(1) Counter-Rotating Props Vmca - 70 (80)
Best Angle Climb	78 (90)	0	Short Field: 15° Lift-Off 61 (70), * 73 (84) Over 50' Obstacle
Best Rate Climb	97 (112)	0	
CRUISE (TAS - 7,000')			
Economy	142 (163)	0	19.1" Hg - 2300 RPM - 13.4 GPH - 55%
Normal	156 (179)	0	20.8" Hg - 2400 RPM - 15.2 GPH - 65%
Maximum	167 (192)	0	Full Throttle - 2400 RPM - 17.2 GPH - 75%
ARRIVAL			
Approach	100 (115)	15	17" MP - (Initially)
Short Final *	83 (95)	27	Props - 2400 RPM Min.

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Specs Are Approximate Because Of Environment & Plane Model / Year Variables. Specs Are In: LBS, KIAS, Sea Level, Standard Day, Normal Category, Max Gross Wt., No Wind, "Best Power", New Engines. () = MPH.
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(IF UNABLE TO ABORT TAKEOFF)

POWER LOSS DURING TAKEOFF

- THROTTLES – CLOSE BOTH IMMEDIATELY
- BRAKES – AS REQUIRED / STOP STRAIGHT AHEAD (Unlatch Doors)
- * IF INSUFFICIENT RUNWAY REMAINS FOR STOPPING
 - * FUEL SELECTORS – OFF
 - * MASTER / MAGS – OFF

UNLATCH DOOR
PROTECT BODY

ONE ENGINE IMMEDIATELY AFTER TAKEOFF

>78 KIAS (90 MPH) (Also One Engine Go-Around-Avoid If Possible)

- MAINTAIN SAFE AIRSPEED (Quality Landing Area Ahead?)
- GEAR / FLAPS – UP
- DIRECTIONAL CONTROL – MAINTAIN
- IDENTIFY
- VERIFY – CLOSE THROTTLE (Inop. Engine)
- PROP – FEATHER (Inop. Engine) (Above 1000 RPM)
- ACCELERATE TO 91 KIAS (105 MPH) (3° - 5° Bank & 1/2 Ball) to Good Engine

ONE ENGINE IN FLIGHT

- CONTROL AIRPLANE – MAINTAIN SAFE AIRSPEED >84 KIAS (97 MPH)
- INOPERATIVE ENGINE – IDENTIFY
- OPERATIVE ENGINE – ADJUST
- THROTTLE – AS NEEDED TO MAINTAIN CONTROL

TROUBLE-SHOOT: Fuel On/Crossfeed, Fuel Pump-On, Mixture, Prop, Throttle, Master / Gen., Mags.

IF NO RESTART – SECURE DEAD ENGINE:

Retard Throttle, Feather Prop, Mixture-Idle Cutoff, Fuel Pump Off, Fuel Off, Mag/Gen Off, Close Cowl Flap.

- COWL FLAP (OPERATIVE ENGINE) – AS REQUIRED
- FUEL PUMP (OPERATIVE ENGINE) – AS REQUIRED (Consider Xfeed)

ONE ENGINE LANDING

- SECURE INOP. ENGINE – MAINTAIN SAFE AIRSPEED
- FLAPS – AS NEEDED
- LOWER GEAR – WHEN FIELD ASSURED
- FINAL APPROACH – 91 KIAS (105 MPH)
- FULL FLAPS – WHEN COMMITTED TO LAND

BOTH ENGINES OUT / LANDING

- MAINTAIN BEST GLIDE – 96 KIAS (110 MPH) (Full Gross)
- PROPS – FEATHER
- MIXTURE – FULL LEAN / IDLE CUTOFF
- FUEL SELECTORS – OFF
- SQUAWK 7700
- DECLARE EMERGENCY (TWR, APP, Unicom, 121.5)
- SEATBELTS / HARNESS
- FLAPS – AS NEEDED (Full Flaps When Field Assured)
- GEAR – DOWN (Up If Very Rough or Soft Terrain)
- MASTER / MAGS – OFF
- UNLATCH DOORS / PROTECT BODY

ELECTRICAL FIRE IN FLIGHT

- ALL ELECTRICAL DEVICES + MASTER / GEN – OFF (Pull CB's, Mags On)
- CABIN HEAT & AIR – OFF (Vents – Closed)
- IF FIRE OUT TRY MASTER ON ONLY (Vents – Open)
- THEN ONE ESSENTIAL ELECTRICAL DEVICE AT A TIME
- RESET CIRCUIT BREAKER(S) ONLY IF CRITICAL – LAND ASAP

ENGINE FIRE IN FLIGHT

- FUEL SELECTOR – OFF TO AFFECTED ENGINE
- CLOSE THROTTLE / FEATHER PROP
- MIXTURE – FULL LEAN / IDLE CUTOFF
- COWL FLAP – OPEN
- HEATER / DEFROSTER – OFF
- INCREASE AIRSPEED TO EXTINGUISH – LAND ASAP

ENGINE FIRE DURING START

- MIXTURE – FULL LEAN / IDLE CUTOFF
- CONTINUE CRANKING ENGINE / THROTTLE – FULL OPEN
- FUEL SELECTOR / FUEL PUMPS – OFF
- MASTER – OFF
- SHUTDOWN OTHER ENGINE
- EVACUATE / FIRE EXTINGUISHER

ICING

- PITOT HEAT – ON
- MANUAL ALTERNATE AIR – AS NEEDED
- CABIN HEAT & DEFROST – MAXIMUM
- STRONGLY CONSIDER 180° TURN
- ATTAIN HIGHER OR LOWER ALTITUDE
- INCREASE ENGINE & PROP SPEED
- FULL FLAPS NOT RECOMMENDED FOR LANDING
- LAND FASTER AS NEEDED

MANUAL GEAR EXTENSION

- AIRSPEED – 87 KIAS (100 MPH) OR LESS
- LOWER GEAR LEVER OR IF 3 POSITION SWITCH – CENTER OFF
- DISENGAGE MOTOR – RAISE RELEASE ARM & PUSH FORWARD
- PLACE HANDLE IN LEFT SOCKET – LOCK & EXTEND HANDLE (If Left Socket Not Clear Use Right Socket, Twist Clockwise To Lock, Then Left Socket)
- ROTATE FORWARD FULL TRAVEL – VERIFY GREEN LIGHT

OTHER

- RADIO OUT: CHECK CIRCUIT BREAKERS & VOLUME
- RECYCLE ALTERNATOR SWITCH
- If IFR & Still Out, Set XPDR To 7600.
- (Suggested For VFR If In B, C, D Airspace.)

UNICOM: 122.7 – 122.8 – 122.95 – 123.0 – 123.05
 MULTICOM: 122.9 (CTAF) – 122.75 – 122.85 (Air To Air)
 F.S.S.: 122.000-122.675. Most Common - 122.2

EMERGENCY: 121.5

TOWER SIGNALS	ON GROUND	IN FLIGHT
Steady Green	Cleared For Takeoff	Cleared To Land
Flashing Green	Cleared To Taxi	Return For Landing
Steady Red	Stop	Yield & Continue Circling
Flashing Red	Taxi Clear of Landing Area	Airport Unsafe - Do Not Land
Flashing White	Return To Starting Point	N/A
Alternating Red & Green	Use Extreme Caution	Use Extreme Caution

* Every Plane Has A Different Empty Weight And Useful Load
 Piper Twin Comanche PA-30/39, (Lycoming:IO-320-B, 160 HP)

- * Empty Weight: LBS (Specific Plane Weight)
- * Max. Useful Load: LBS (Including Fuel @ 6 lbs/gal)
- Max. Bag Area: 200 LBS (S/N 30-1 thru 30-901)
250 LBS (S/N 30-902 and Up)
- Max. T.O. Weight: 3600 LBS / w/TIP TANKS-3725 LBS

- Fuel Type: 100 LL (Blue) / 100 (Green) (91/96 Min)
- Usable Fuel: 84 Gallons (Opt. Tip Tanks - 30 Gal.)
- Oil Capacity: 8 Quarts Per Engine (Minimum 6)
- Electrical: 12 VOLT / 50 AMP
- Tire Pressure: Nose - 42 psi / Mains - 42 psi